

REMARKS/ARGUMENTS

Claims 1-12 and 14-17 are pending.

Applicants wish to thank the Examiner for a telephone conversation on February 17, 2010. Applicants' representative kindly requested a meeting with the Examiner prior to filing a response. The Examiner has not granted a meeting with Applicants and explained that she usually does not grant an interview after the final rejection.

Claims 14-17 are rejected under 35 U.S.C. 112, first paragraph, for lack of written description. Applicants respectfully traversed. Paragraph [0038] of the present specification describes:

“When vibrating the hair, which is in such a state the permanent treatment liquid is adhered thereon (without the permanent-liquid absorbing step), or the hair on which the treatment powder is sprinkled (with the permanent-liquid absorbing step) with ultrasonic vibrating means in the shaping step, since the permanent treatment liquid goes deep into the hair follicle so that it permeates down to the hair papilla of the hair, it is possible to turn hair, which extends after the permanent treatment, into a straight-hair shape more securely.” (emphases added).

For further support, see paragraphs [0031], [0067], and [0109] of the present specification. Applicants request that the rejection be withdrawn.

Claims 15-17 are rejected under 35 U.S.C. 112, second paragraph, because claims 1 and 2 do not describe “vibrating the hair.” Applicants respectfully disagree.

Claim 15 depends upon claim 2, which, in turn, depends on claim 1. Claim 15 recites a step additional to that of claim 2 and, therefore, further limits claim 2. Specifically, in claim 15, prior to shaping of claim 2, vibrating the hair with ultrasonic vibrating means is used. Thus, the process of claims 1 and 2 is further limited.

Applicants believe that claim 15 is clear and request that the rejection be withdrawn.

Claims 1, 3, 4, and 6-13 are rejected under 35 U.S.C. 103(a) over Takehana, US 6,526,988. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) over Takehana and Sakakibara, US 5,958,393. The rejections are traversed because:

(1) the cited references alone or in combination do not describe or suggest

a) adhering a permanent treatment liquid down to a position adjacent to the hair root, thereby permeating a permanent treatment liquid into the hair root, after shampooing the hair to remove a hair dressing and the oil contents,

b) pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair.

(2) When the hair in Takehana is treated, the treatment does not inherently adhere down to a position adjacent to the hair root and the new hair does not inherently grow straight (see the Declaration submitted herewith), and

(3) Pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair provides an advantageous result which cannot be expected based on the disclosure of the cited references (see the Declaration submitted herewith).

(4) One would not have been motivated to treat the hair root with the permanent treatment liquid so that the liquid penetrates the root based on the disclosure of the cited references because (i) only treating hair as in Takehana does not make the newly grown hair straight, and (ii) it is known from commercial treatments that when the permanent treatment liquid is adhered onto a portion which is close to the hair root, the hair might be cut off upon pulling.

(5) One would not have reasonably expected that in the Takehana method, the newly grown hair (after the permanent treatment) has also a straight shape.

(6) One would not have been motivated to combine a permanent treatment of Takehana with the powder treatment of Sakakibara because the Sakakibara powder is applied on the rolled hair for providing a permanent wave, wherein the powder forms a film that

prevents the perm solution from dripping, while the permanent treatment of Takehana makes the hair straight by treating the hair with the perm solution and extending the treated hair by ironing and, therefore, forming a film on the hair that is ironed to become straight to hold the perm solution from dropping does not seem to be possible.

(7) One would not have reasonably expected that applying the Sakakibara powder to the Takehana a hair that was being straightened would have *stopped* the shaping to a straight shape temporarily because Sakakibara describes that the powder fixes the perm solution by a formed film and the hair is kept at this stage (on the rolls covered with the film) for some time while the treatment is *proceeding* to set the hair in permanent curls (col. 5, lines 1-9).

The claimed method

The claimed permanent treatment method, comprises permeating comprising adhering a permanent treatment liquid comprising thioglycolic acid, down to a position adjacent to the hair root of hair that has been shampooed and from which a hair dressing and the oil contents have been removed, thereby permeating the permanent treatment liquid into the hair root; and shaping comprising pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair, to which the permanent treatment liquid has been adhered, to a predetermined temperature, thereby shaping the hair to straight hair.

The claimed method further comprises, between the permeating and shaping, sprinkling a treatment powder that adsorbs the permanent treatment liquid, onto the hair to transfer the treatment liquid from the hair to the treatment powder, thereby absorbing the permanent treatment liquid and stopping the shaping temporarily. The hair can be also vibrated during the treatment and/or shaping.

Cited references

The cited references do not disclose the following limitations A) and B):

A) adhering a permanent treatment liquid down to a position adjacent to the hair root of hair, thereby permeating a permanent treatment liquid into the hair root, after shampooing the hair to remove a hair dressing and the oil contents, and

B) pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair, in such a state that the treatment liquid is adhered to the whole hair including the hair root and permeates the root.

**I. Disclosure of Takehana**

The Examiner has agreed that Takehana does not disclose that “adhering a permanent treatment liquid down to a position adjacent to the hair root of hair.” Page 3 of the Official Action. However, the Examiner is of the opinion that treating the root of the hair during the permanent treating to achieve straight hair is obvious and that when the hair is treated, the treatment inherently penetrates the root and the newly grown hair is inherently straight (page 3-4 of the Official Action). Applicants respectfully disagree.

The claimed method treats hair so that a straight-hair state is maintained for a long time. Moreover, the new hair which extend after the permanent treatment also grow in a straight-hair state, as described in the following paragraphs:

“In accordance with the permanent treatment method of the present invention, hair, which has extended anew since the permanent treatment, turns into a straight-hair state. The reason has not been clear yet, however, it is believed to result from the following actions. A cross-sectional view for schematically illustrating a hair-root portion in curly hair is shown in Fig. 1.

Among hair 1, a hair root 3 is a portion, which is positioned in a hair follicle 2, a part of which is completed by being constituted of a scalp 4. In curly hair, it has been known that this hair root 3 is curved as an arc shape. When adhering a permanent treatment liquid onto a portion adjacent to the hair root 3 among this hair 1, the permanent treatment liquid permeates into the hair root 3 within the hair follicle 2. When the permanent treatment liquid permeates into the hair root 3, since thioglycolic acid, which is included in the permanent treatment liquid, acts to the hair root 3, the elasticity of the hair root 3 becomes small, and additionally flexibility is given to the hair root 3.

In this state, as shown in Fig. 2, by pulling the hair 1 while warming it, the hair 1 is shaped to a straight-hair shape as shown in Fig. 3. And, by shaping the hair

1 to a straight-hair shape, it is believed that the hair 3 too is shaped to a straight configuration.

Here, among the hair root 3, a hair base end 5 is a part, which contacts with a hair papilla 6, the bottom of the hair follicle 2, the elongation of the hair 1 occurs because of the fact that the cell division occurs here. Therefore, since the hair base end 5 receives a certain action because of the fact that the hair root 3 is shaped to a straight configuration, it is believed that the **hair 1, which extends after the permanent treatment, turns into a straight-hair shape.**" (emphases added) Paragraphs [0023]-[0026].

Thus, the claimed method provides:

1) In the permeating, the permanent treatment liquid is adhered down to the position adjacent to the hair root of hair, thus, the treatment liquid hardly pools around an entry of hair follicle (because there are no hair dressing, oil contents, etc.), and the treatment liquid transmits through the hair, and goes deep into the hair follicle so that it permeates into the hair papilla of the hair to permeate the whole hair root (e.g., Figures 1-3).

2) Since the hair is pulled with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair, in such a state that the treatment liquid is adhered to the whole hair including the hair root and permeates the treatment liquid in the shaping step, the hair root is shaped to a straight shape and hair which has extended anew since the permanent treatment, is also turned into a straight-hair state, the effect of permanent treatment is maintained for a long time (e.g., Figures 1-3).

Namely, the present invention exhibits a remarkable effect that the hair which has extended anew is also turned into a straight-hair state and the effect of permanent treatment is maintained for a long time.

The present specification describes that

"[I]n the conventional permanent treatment methods, the permanent treatment liquid is adhered onto the portions alone, which are separated from the hair root, among the hair. It is because of the fact that, in the permanent treatment method for shaping hair to straight hair, since external forces, such as pulling and compressing, are applied to the hair, there is a fear that the hair might be cut off upon pulling if the

permanent treatment liquid is adhered onto a portion, which is close to the hair root among the hair, to make the elasticity of this portion small.

Therefore, in the conventional permanent methods, the permanent treatment liquid does not permeate down to the hair root, and accordingly hair, which has extended anew since the permanent treatment, has been still kept to be as curly hair. In the permanent treatment method of the present invention, because of the fact that the permanent treatment liquid is permeated down to the hair root and the hair is pulled while warming it, it is possible to turn the hair, which extends after the permanent treatment, into a straight-hair shape, as described above.” (emphases added) Paragraphs [0027]-[0028].

Thus, the claimed method provides an unexpected result and the claimed method cannot be obtained based on the cited references.

In addition, Takehana describing conventional methods teaches away from treating roots with the perm solution because when the root treated hair is pulled, the hair might be cut off.

Further, the cited references do not set a goal of growing new hair also having a straight shape after the treatment. Thus, the cited references do not recognize that a problem of growing new straight hair after the treatment needs to be solved. Thus, treating the roots is not routine. Specifically, for optimizing the perm application to the hair and the pulling force, the prior art must first recognize a particular parameter as a result-effect variable, i.e., that growing anew straight hair after the perm treatment is a function of the root treatment with the perm solution and the pulling force during shaping (*see* page 19 of the present specification). MPEP 2144.05. II, *e.g.*, *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). The cited references do not recognize such as dependency.

Further, when adhering a treatment liquid down to a position adjacent to the hair root, the treatment liquid pools around an entry of hair follicle and elasticity of hair around the entry of hair follicle becomes partially small and cut-off hair is likely to occur. Therefore, “adhering a treatment liquid down to a position adjacent to the hair root and pulling the hair to shape it to straight hair” has been considered to date as a taboo. The permanent treatment

method according to the present invention is counterintuitive because the claimed method comprises “adhering a treatment liquid down to a position adjacent to the hair root and pulling the hair to be straight” considered to date as a taboo, and, therefore, the claimed method is not obvious.

Thus, one would not have been motivated to treat the hair root with the permanent treatment liquid so that the liquid penetrates the root based on the disclosure of the cited references because it is known from commercial treatments that when the permanent treatment liquid is adhered onto a portion which is close to the hair root, the hair might be cut off upon pulling.

One would not have reasonably expected that in the Takehana method newly grown hair (after the permanent treatment) has also a straight shape because treating roots was avoided in commercial treatments.

Next, a pulling force of  $0.5 \text{ kg/cm}^2$  or more is used because a pulling force of less than  $0.5 \text{ kg/cm}^2$  is too weak to shape the hair root to a straight shape (e.g., paragraph [0066]).

-- The Examiner has alleged that Takehana describes “pulling the hair while warming the hair.” Applicants respectfully disagree.

Takehana only discloses that the hair is treated with a hair iron to be straight which does not necessarily involve pulling the hair, not to mention with the claimed force of  $0.5 \text{ kg/cm}^2$  or more.

**II. Applicants conducted additional experiments showing an advantageous effect of the claimed method.** See the Declaration of Itsuo Sakakibara submitted with this response.

Example 1: Hair is treated with the permanent treatment method as in Claim 1 of the above-identified application. See Fig. 1(b) attached with the Declaration.

The permanent treatment liquid including thioglycolic acid was adhered to the position adjacent to the hair root, which had been shampooed to remove a hair dressing and oil contents. The permanent treatment liquid was supplied to the hair roots. Thereafter, the hair was pulled with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair to a predetermined temperature, wherein the permanent treatment liquid was adhered thereon.

Figure 1(a), attached with the Declaration, is a photograph of the hair before the treatment and Figure 1(b), attached with the Declaration, is a photograph of the hair treated as described above.

After the treatment, the newly grown hair is straight. The hair in the backside relative to the ear, in other words, the right side in the photograph, is slightly waved (see Fig. 1(b)).

The difference in the shape of the newly grown hair provided by the claimed method and that of Takehana is because the hair in the front side relative to the ear, in other words, the left side in the photograph, was pulled by a man with a force of about  $1 \text{ kg/cm}^2$  (as in claim 1) and the hairs in the backside relative to the ear, in other words, the right side in the photograph, was pulled by a woman with a force of about  $0.2 \text{ kg/cm}^2$  (which is outside of the claimed force).

From the data of Example 1, it is clear that pulling the hair with a force of  $0.5 \text{ kg/cm}^2$  or more, as in the claimed method, provides an advantageous result that is not apparent for a skilled person. Specifically, the newly grown straight hair does not grow when the hair is treated according to the method of Takehana in which the hair is not pulled with a force of  $0.5 \text{ kg/cm}^2$  or more.

Example 2: Another Example of treating hair with the permanent treatment as in Claim 1 of the above-identified application. See Fig. 2 attached with the Declaration.

The permanent treatment liquid including thioglycolic acid was adhered to the position adjacent to the hair root, which had been shampooed to remove a hair dressing and

oil contents. The permanent treatment liquid was permeated to the hair roots. Thereafter, the hair was pulled with a force of  $0.5 \text{ kg/cm}^2$  or more while warming the hair to a predetermined temperature, wherein the permanent treatment liquid was adhered to the hair roots.

Fig. 2(b) shows that the hair covered with the long hair growing up from the top of the head is straight. However, Fig. 2 (a) shows that the hair, which is growing up from the neighborhood of the border between the top of the head and the back of the head, is slightly waved.

The hair, which are growing up from the neighborhood of the border between the top of the head and the back of the head, is slightly waved because the hair in this area was not washed sufficiently and the oil contents remained in the hair root and, thus, the permanent treatment liquid was not supplied to the hair roots.

From the data of Example 2, it is clear that the permanent treatment liquid comprising thioglycolic acid does not always permeate to the hair root when the treatment is applied to the hair. Also, the necessity of providing the permanent treatment liquid to the hair roots is not apparent for a skilled person based on the disclosure of Takehana because a removal of a hair dressing and oil contents is not required in Takehana and Takehana does not concern growing the new straight hair but only provides shaping the *already grown* hair.

Thus, the new straight hair does not grow according to the Takehana method which does not comprise adhering a permanent treatment liquid, which includes thioglycolic acid, to the position adjacent to the hair root, thereby permeating the permanent treatment liquid into the hair root.

Example 3: An Example of treating hair with the permanent treatment method described in Takehana. See Fig. 3 attached with the Declaration.

The permanent treatment liquid, which includes thioglycolic acid, was adhered to the whole scalp including hair and the hair was pressed and held by a hair iron under a predetermined temperature.

Figure 3(a) and Figure 3(b) are photographs of the hair after the treatment and Figure 3(b) is an enlarged photograph of Figure 3(a). From Figure 3(a) and Figure 3(b), it is clear that by only applying the permanent treatment liquid to the hair and ironing the hair, the curly hair merely grows more curly and the newly grown hair is not straight. Further, when the permanent treatment liquid enters the hair root, curly hair grows more curly. Therefore, a skilled person would not have applied the permanent treatment liquid to the scalp based on the disclosure of Takehana to obtain straight newly grown hair.

Thus, by only applying the permanent treatment liquid, which includes thioglycolic acid, to the whole scalp including hair, the curly hair merely grows more curly and the newly grown hair cannot be straight.

However, by adhering the permanent treatment liquid to the hair to the position adjacent to the hair root, and pulling the hairs with a force of  $0.5 \text{ kg/cm}^2$  or more, as in the claimed method, the curly hair do not grow more curly and the curly hair can be shaped to straight hair and the newly grown hair is straight.

Therefore, Applicants respectfully disagree with the Examiner's assertion that when the hair treatment agent of Takehana is applied to the hair, the hair roots inherently are also treated.

Example 4: Another Example of treating hair with the permanent treatment method described in Takehana. See Fig. 4 attached with the Declaration.

The permanent treatment liquid, which includes thioglycolic acid, was adhered to the position adjacent to the hair root, and the hair was pressed and held by a hair iron under a predetermined temperature.

From Figure 4(a), it is clear that the curly hair, of which the hair root is upright in the top of the head, grows more curly. Thus, when the hair root is upright, the treatment liquid is adhered to the hair root and the curly hair grows more curly.

From Figure 4(b) and Figure 4(c), it is clear that when the hair root is bending downward, the treatment liquid is hard to be adhered to the hair root and curly growing can be restrained.

From Figure 4 (a), 4(b) and 4(c), it is clear that the treatment liquid is adhered to the hair root which is upright and so the curly hair can grow more curly but the newly grown hair does not grow straight.

### **III. A combination of the discloser of Sakakibara and Takehana.**

The Examiner has also alleged that it would have been obvious to used the powder of Sakakibara in the method of Takehana. Applicants respectfully disagree.

One would not have been motivated to combine a permanent treatment of Takehana with the powder treatment of Sakakibara because the Sakakibara powder is applied on the rolled hair for providing a permanent wave, wherein the powder forms a film that prevents the perm solution from dropping, while the permanent treatment of Takehana makes the hair straight by treating the hair with the perm solution and straightening the treated hair by ironing and, therefore, fixing the hair (as in Sakakibara) that is ironed to make the hair straight (as in Takehana) does not seem to be possible.

Moreover, one would not have reasonably expected that applying the Sakakibara powder to the Takehana hair that was being straightened would have *stopped* the shaping to a straight shape temporarily (as in claim 1) because Sakakibara describes that the powder fixes the perm solution by forming a film and the hair is kept at this stage (on the rolls covered with the film) for some time while the treatment is *proceeding* to set the hair in permanent curls (col. 5, lines 1-9).

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Thus, Takehana and/or Sakakibara do not make the claimed method obvious.

Applicants request that the rejection be withdrawn.

A Notice of Allowance for all pending claims is requested.

Respectfully submitted,

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